The Bill Blackwood
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Cost Effectiveness of Personally Assigned "Take Home" Patrol Vehicles

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ABSTRACT

Agencies and political subdivisions are looking for ways to be cost effective, budget minded, but provide more at the same time. One way to provide more and still be cost effective would be the implementation of a take-home vehicle program for their agency. Surveys of agencies throughout the State of Texas were conducted to obtain information about the cost effectiveness of such a program. The surveys included sizes and types of current fleet management systems used by these agencies. The agencies were not limited to size or location. The findings concluded an initial cost to implement a take-home program would be high in the short term but taper off over several years. The long term results would produce a saving in several areas and a three (3) percent increase to the overall budget after several years.

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INTRODUCTION

A current trend in law enforcement today is providing community policing theories in one form or another. Due to manpower shortages and budget cuts, some departments are finding it difficult to implement a good portion of these theories. Law enforcement agencies are implementing new and innovative techniques to try to help offset the lack of budget and manpower.

One technique being used by some agencies is providing assigned, take- home, vehicles to uniformed police officers. The theory of assigning marked, take-home, vehicles to officers gives the impression that there are more officers in the field then there are actually out there. This theory is also believed to reduce the crime rate by providing a higher visibility in the community.

This research will examine the cost effectiveness of providing take-home vehicles to officers and consider what the short-term costs versus the long-term costs or benefits are, if any. Questions will be considered regarding: reduced or increased maintenance costs by the implementation of a take-home vehicle program, whether or not the agencies or political entities will benefit from implementing such a program, whether or not such a program is beneficial to the individual officers.

Research will be conducted by the evaluation of journals and other periodicals to learn what other researchers have found regarding a take-home vehicle program. Telephone and written surveys will also be used to gain further information on this research. Additionally, agency policies and budgets will be researched to provide information into the effectiveness of such a program.

The intended outcome of this research proposes that in the short-term, the cost of a take-home program will be high to the agency or political entity. Agencies that implement such a program will benefit in the long run by lower maintenance costs and the ability to keep a vehicle in use (on-line) for a longer period of time. Ideally, officers will take better care of a vehicle assigned to them, knowing they have to keep the vehicle for a longer period of time. This aspect will also increase the accountability for the vehicles. Subsequently, the morale of officers will be higher as a result of a take-home program with positive financial benefits (like fuel and maintenance) on personal vehicles.

REVIEW OF LITERATURE

The research of numerous articles and surveys found slightly varying results in the area of the cost effectiveness of take-home patrol vehicles. The research did show the size of the agency would greatly affect the outcome of the research. All research showed that the initial costs to outfit an agency with take- home vehicles was very expensive due to the fact that most existing agencies would have to expand their fleets between 33% - 50%. The initial cost for a take-home program was greatest the first year the vehicles were purchased but would taper off over a period of several years. According to Yates (1992), “about 90% of the state government law enforcement agencies in the U.S. practice a system that, while having a moderately high initial cost, makes them more efficient and eventually saves money” (Yates, 1992, paragraph 1). The least costly way to initiate such a program would be to spread the purchase of more vehicles over several years. By adding additional vehicles to the fleet every year, the cost would be offset. Research conducted showed several ways that agencies were

able to offset the high initial cost. One such way was the longevity of an assigned, take-home vehicle. The studies showed the more shifts, per a twenty-four hour (24) period of time a vehicle was driven would decrease the longevity by 33.3% for an eight hour shift, 40% per ten hour shift, and 50% for twelve hour shifts. According to Zhang & Benson (1997) "the PPV (Personally assigned Patrol Vehicle) Program was found to have brought about a significant reduction in maintenance costs and an increase in vehicle duration. Over the eight-year period, the PPV Program cost 31.34 percent less than the conventional pool car program" (p. # 751).

Another area showed savings in vehicle maintenances between take-home vehicles and pool car program. Two agencies in California where surveyed and research conducted on their fleet programs. Both agencies surveyed where in the same geographical location with fleets of the same size. One agency had an assigned take-home program and the other had a pool fleet program. Maintenance and repair files from both agencies where checked. A five car test group was picked with vehicles of similar design, manufacture date, and mileage. Zhang & Benson (1997) describe:

> The standard deviation of miles per preventive maintenance visit among PPV was 1,327.41, compared to 3,463.59 for the pool cars. Pool cars in general needed far more repairs (non-pm shop visits) than the personal vehicles (one per 1,244 miles compared to one per 3,375 miles for the personally assigned cars). Those non-pm visits did not include any repair work done on the same day when the regular scheduled preventive service took place, Pool cars also cost twice as much in parts (averaging $0.07 per miles) as the personally assigned cars (averaging $0.03 per mile). When we calculated the labor at the rate of $55 per

> hour (relatively standard in Southern California) and the cost of parts, pool cars turned out to be about 70 present more expensive to maintain than the personal cars - $0.17 per mile compared to $0.10. In short, these indicators revealed a clear pattern that pool cars required more mechanic care and cost for parts than the personally assigned vehicles. (p. # 755).

The same analysis conducted in California did show an increase cost in bodywork on personally assigned cars compared to pool cars. After interviews were conducted with officers from both agencies, the researchers found that personally assigned vehicles where given a higher priority on appearance by officers who drove them than those officers who drove pool cars. During the author's research, an article in the *Law and Order* had an interview with the writer of the article and Lt. Col. Larry Delaney, deputy superintendent for field operations at the Indiana Highway Patrol which states:

> Naturally there is a question of cost. Don't more cars mean more expenses? Yes and no. Obviously the cars have to be paid for, and the larger the department the larger the conversion cost. The initial cost would best be spread over a period of years, and that means higher expenses for those years. But there will be net savings on the maintenance costs and extended vehicle life. Take home cars accumulate fewer miles per year: they're used just one shift per day, five days per week. That means they accumulate mileage at less than one-third the rate of a pool car used three shifts per day, seven days per week (Yates, 1992, paragraphs 15 & 16).

The research showed other benefits to a take-home vehicle program that did not result in cost increase or reduction but should be mentioned. Officer morale was higher among officers with personally assigned vehicles versus officers who drove pool cars. Officers interviewed in the California survey stated that they preferred the take-home program to the pool car program. This researcher found this to be the same results in form of written and telephone surveys conducted throughout the State of Texas.

According to Zhang & Benson (1997):

> Since these two agencies were adjacent to each other; officers of both agencies were familiar with each other agency's fleet management. It soon became clear that it was almost impossible for officers of one agency to talk about their vehicles without mentioning those of the other agency. Therefore, it was no surprise to find that even though the majority of the Sheriff's officers had not experienced a PPV program, they nevertheless preferred this type of vehicle assignment. (p. # 758).

METHODOLGY

The research will examine the cost effectiveness of providing take-home vehicles to officers and consider what the short-term costs versus the long-term costs or benefits are, if any. Questions will be considered regarding: reduced or increased maintenance costs by the implementation of a take-home vehicle program, whether or not the agencies or political entities will benefit from implementing such a program, whether or not such a program is beneficial to the individual officers.

The author's hypothesis proposes that the initial cost will be high to the agency to implement a take-home program, but the long-term cost will be reduced. The reduction

will occur in the areas of fleet longevity and maintenance. The author surveyed numerous agencies throughout the State of Texas to inquire about supervisor's and administrator's feeling and thoughts about take home patrol vehicles. The survey was a fifteen (15) question survey that questioned the size of the agency, population of community they serve, and numerous questions about their current form of fleet management. The survey was a written instrument used to obtain the information. The survey was not limited to size or geographic location. Agencies of varying size and locations from across the State of Texas were surveyed to obtain the information. The response to the written survey from agencies was ninety (90) percent. The questions on the survey were tallied and the opinions were used to support the findings in this research.

FINDINGS

During the author's research, numerous articles and papers were discovered that seem not to have a bias either way regarding the concept of take-home or personally assigned vehicles. The author found this also to be true in the surveys. About half of the supervisors the author spoke with and surveyed, are first-line supervisors from varying sized departments. The majority of them are in favor of a take home program for their agency. First-line supervisors and Administrators gave varying reasons for wanting this type of program but the outcome was consistent. A majority agreed a program would increase the accountability and the conditions of their agencies vehicles (see Figure 1)

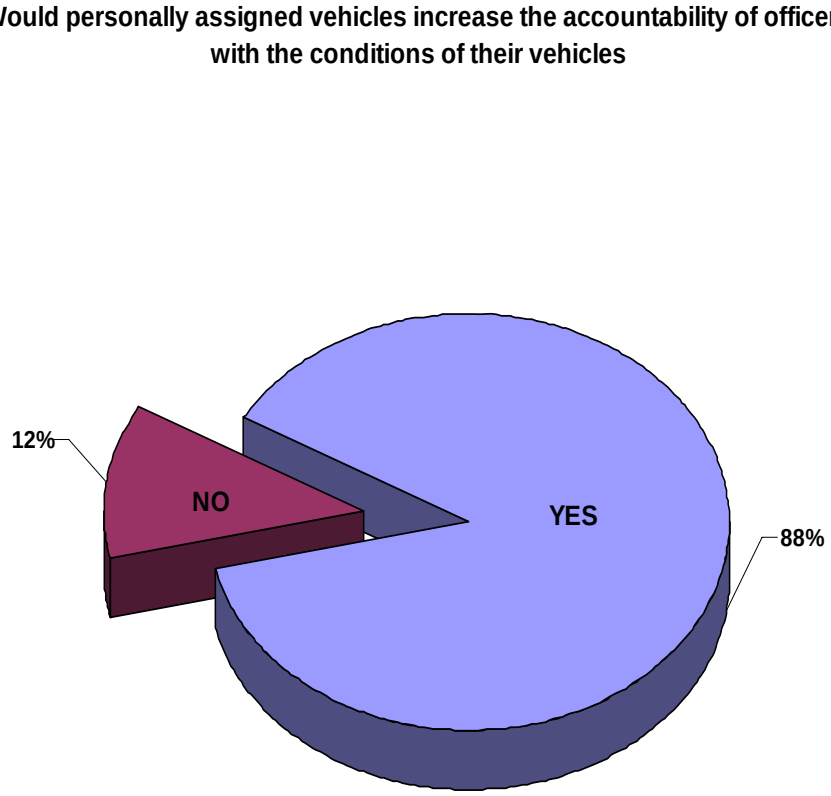

Figure 1

Depending on the size of the agency and fleet, surveys showed an increase in longevity of vehicles if a take home vehicle program was used or could be used. This led to lower replacement cost because fewer vehicles needed to be purchased per year. One drawback was the initial cost to the agency or entity is to purchase the extra vehicles to implement such a program. Through research, the author found some agencies were able to help outset the initial cost by implementing the program over several years. Most agencies the author surveyed would have to increase their fleet by fifty percent (50%) in order to implement such a program. Most agencies surveyed replied that a take home vehicle program would have a positive effect and make

vehicles last between two (2) and five (5) years longer then their current fleet last (see Figure 2).

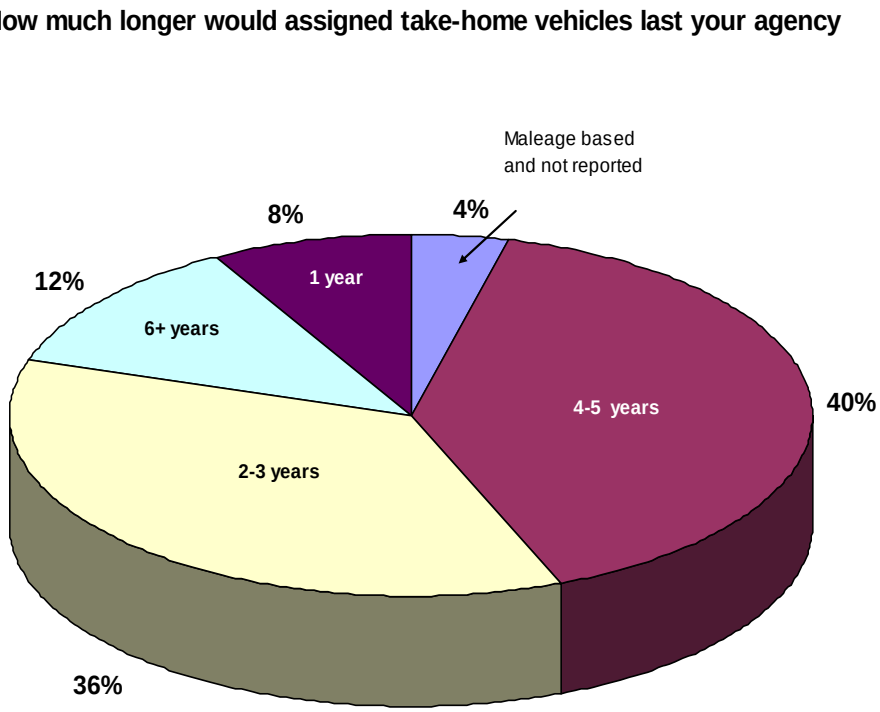

Figure 2

Depending on the size of the agency and fleet was a factor when agencies are questioned about how many shifts a vehicle is driven in a twenty-four (24) hour period of time. The majority surveyed stated there fleet vehicles work two (2) or three (3) shifts in a twenty-four hour period (see Figure 3). By implementing a take home program, vehicles should be driven one (1) shift per twenty-four period of time. This results in fewer miles placed on vehicle, thus the increase in longevity by one-third percent (1/3%)

or two-thirds percent (2/3%) per vehicle.

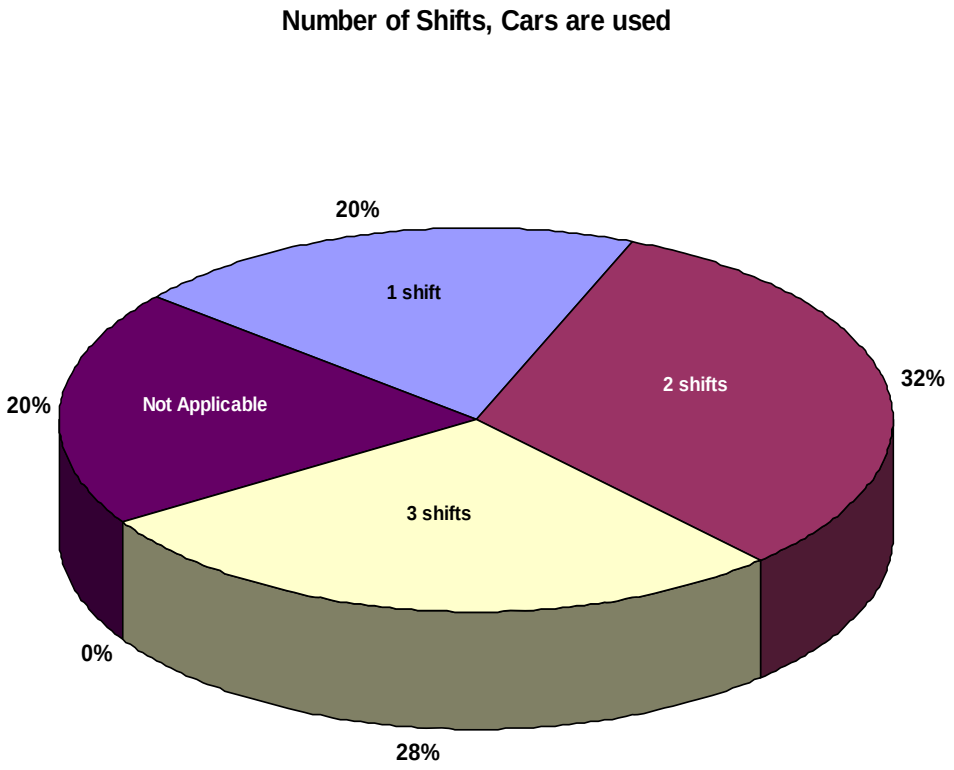

Figure 3

More then half of the agencies surveyed have a pool car system in place (see Figure 4). This also results in higher maintenance cost. A vehicle driven two (2) or three (3) times more often in a twenty-four (24) required maintenance on a more frequent basis versus a vehicle being driven one (1) shift in the same period of time.

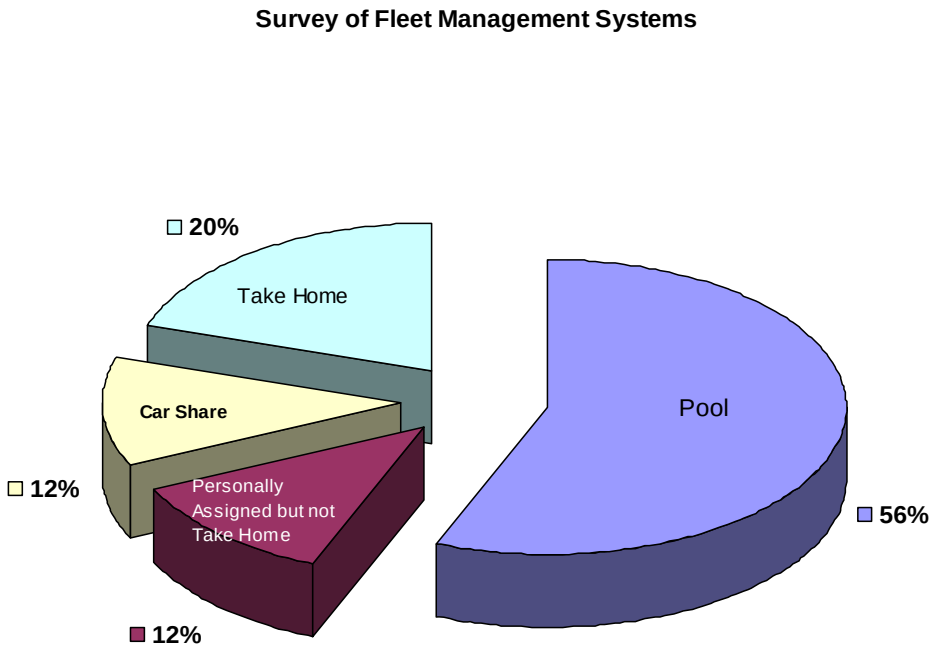

Figure 4

The survey was sent to agencies of numerous sizes and types. Large and small Police Departments, Sheriff's Offices, University Police, and Independent School District Police agencies throughout the State of Texas. The author concluded the surveys would have vast differences but was surprised to see the results were pretty consistent about a take home program. Most surveyed, favored the system. One-hundred percent (100%) surveyed think the public in general would except and even like to see a take-home program in their community, citing an increase-in-visibility of marked units in their community. Those surveyed also said down time between shift changes would decrease because personnel coming to or leaving their area would be able to respond

to calls for service knowing another officer was not waiting for the vehicle they are driving. Agencies reported a down time from shift changes for the same reason. The community was not getting full effective coverage during the shift change times. Personnel have to report to a general location to pick up vehicles before beginning or ended their shifts and reporting to their areas of coverage.

DISCUSSION/CONCLUSIONS

The research examined the cost effectiveness of providing take-home vehicles to officers and considers what the short-term costs versus the long-term costs or benefits are, if any. Questions will be considered regarding: reduced or increased maintenance costs by the implementation of a take-home vehicle program, whether or not the agencies or political entities will benefit from implementing such a program, whether or not such a program is beneficial to the individual officers.

The author's hypothesis is initial cost will be high to the agency to implement a take home program but the long term cost will be reduced. The reduction will occur in the areas of fleet longevity and maintenance.

At the conclusion of research, it showed a large initial cost to implement a take home program for the agency and/or governing body. Depending on the size of the agency and fleet is where the biggest cost factor was found. Most have to increase their fleets by about fifty percent (50%) and equip the vehicles with the appropriate equipment for the job. Taking several years to implement a take home system could offset the initial cost. The savings would come in the longevity and reduced

maintenance per vehicle in a given time period. It should be noted that one area was found to have an increase in cost for the take home vehicles versus the pool system. It was in the area of cosmetic appearance of the vehicles. Officers with take home vehicle were reported to sending vehicles in for cosmetic repairs more often then those officers with pool cars. The research supported the hypothesis on the topic.

The study is relevant to law enforcement to many aspects. The community would benefit the most by having a perceived higher visibility of marked vehicles in their community. The amount of vehicles available to handle given calls for service would increase. Down time of officers between shifts would also decrease and the ability of officers to respond in a timely manner will increase if they already have their vehicles. There are other benefits for the agency such as increase accountability of the officer in the care of the vehicles. Officer's moral may or may not increase. It will at first but further research needs to been done to address the long-term moral of take home vehicles.

Research showed over the long-term there was an average of about a three percent (3%) increase in annual cost, to maintain a take home fleet, to agencies or entities after the program was in place. The initial cost was great but can be offset if spread out over a couple of years. Found during the research was a study done of an agency during the 1980's that actually showed a decrease in the price of gas, per gallon, of take home vehicles versus pool vehicles. This was not researched further during this research topic because of time, years, required to properly research it properly.

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